

Application No.: 10/743,238
Amendment dated: June 10, 2005
Reply to Office Action of February 16, 2005
Attorney Docket No.: 0005.1120US1

This listing of claims will replace all prior versions and listings of claims in this application:

a.) Listing of Claims

1. (currently amended) A single cavity dual membrane Fabry-Perot ~~tunable~~ filter comprising:
 - a first membrane device comprising a first membrane holding a first mirror structure; and
 - a second membrane device with a second membrane holding a second mirror structure, which is opposed the first mirror structure, to thereby define a Fabry-Perot cavity between the first mirror structure and the second mirror structure.
2. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, further comprising a spacer between the first membrane device and the second membrane device for controlling a size of the Fabry-Perot cavity.
3. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein the first membrane device and the second membrane device include electrostatic cavities for deflecting the first membrane and the second membrane.
4. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein the first ~~membrane device~~ mirror structure and the second ~~membrane device~~ mirror structure are flat mirrors.
5. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein at least one of the first mirror structure and the second mirror structure is curved mirror structure.
6. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein, the both the first mirror structure and the second mirror structure are curved mirrors.

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7. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein each of the membrane devices comprise respective substrates ~~comprises a substrate~~, the membranes being deflected by the establishment of an electrostatic drive ~~voltage~~ voltages between the substrates and the membranes.
8. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 7, further comprising an optical port through the substrate of at least one of the first membrane devices and the second membrane device.
9. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein the mirror structures comprise highly reflecting dielectric mirrors.
10. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein a drive voltage generator establishes a voltage between the substrates of the membranes and the membranes.
11. (currently amended) A Fabry-Perot ~~tunable~~ filter as claimed in claim 1, wherein a drive voltage generator establishes a drive voltage between the membrane of the first membrane device and the membrane of the second membrane device.
12. (new) A Fabry-Perot filter as claimed in claim 1, wherein the first membrane device comprises a first electrostatic cavity and the second membrane device comprises a second electrostatic cavity.
13. (new) A Fabry-Perot filter as claimed in claim 12, where the first electrostatic cavity extends from the first membrane away from the Fabry-Perot cavity and the second electrostatic cavity extends from the second membrane away from the Fabry-Perot cavity.
14. (new) A Fabry-Perot filter as claimed in claim 1, wherein first membrane comprises flexures enabling the electrostatic deflection of the first membrane and

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second membrane comprises flexures enabling the electrostatic deflection of the second membrane.

15. (new) A Fabry-Perot filter as claimed in claim 1, wherein the first membrane device and the second membrane device include respective electrostatic cavities for deflecting the first membrane and the second membrane in opposite directions with respect to each other.

16. (new) A Fabry-Perot filter as claimed in claim 1, wherein the first membrane device comprises a first substrate and the second membrane device comprises a second substrate, the first membrane being deflected by the establishment of an electrostatic drive voltage between the first substrate and the first membrane, the second membrane being deflected by the establishment of an electrostatic drive voltage between the second substrate and the second membrane.

17. (new) A Fabry-Perot filter as claimed in claim 16, further comprising a first optical port through the first substrate and a second optical port through the second substrate.